

# TECHNICAL DATA SHEET

## SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver QMT series



Figure can vary

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Solutions

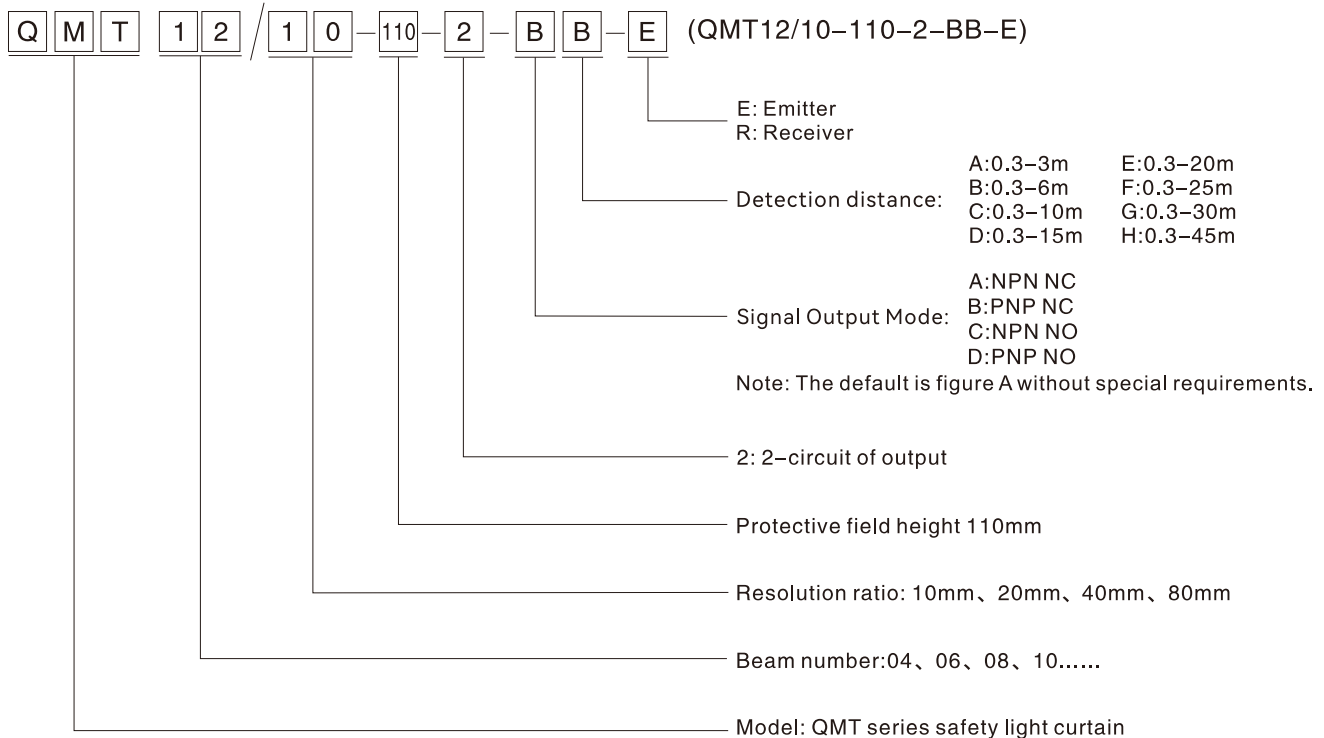


GB/T 19001-2016

## Product application

- A. Light curtain can achieve full protection for the slider can be stopped at any position on the press machine.
- B. The light curtain can only achieve upper dead point protection if the slider can not be stopped at any position on the press machine.
- C. Realize the regional protection for the industry manipulator, injection molding machines, packaging equipment, automation equipment, assembly wires and other dangerous work area.
- D. Used to detect and alarm object.

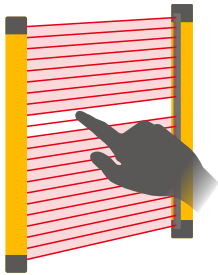
## The specifications of QMT type safety light curtain are as follows:



## Resolution ratio

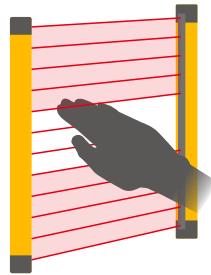
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

### Finger protection



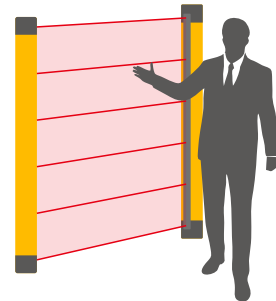
Detection capability  
**10mm**  
diameter

### Hand protection



Detection capability  
**20/40mm**  
diameter

### Arm/body protection



Detection capability  
**80mm**  
diameter

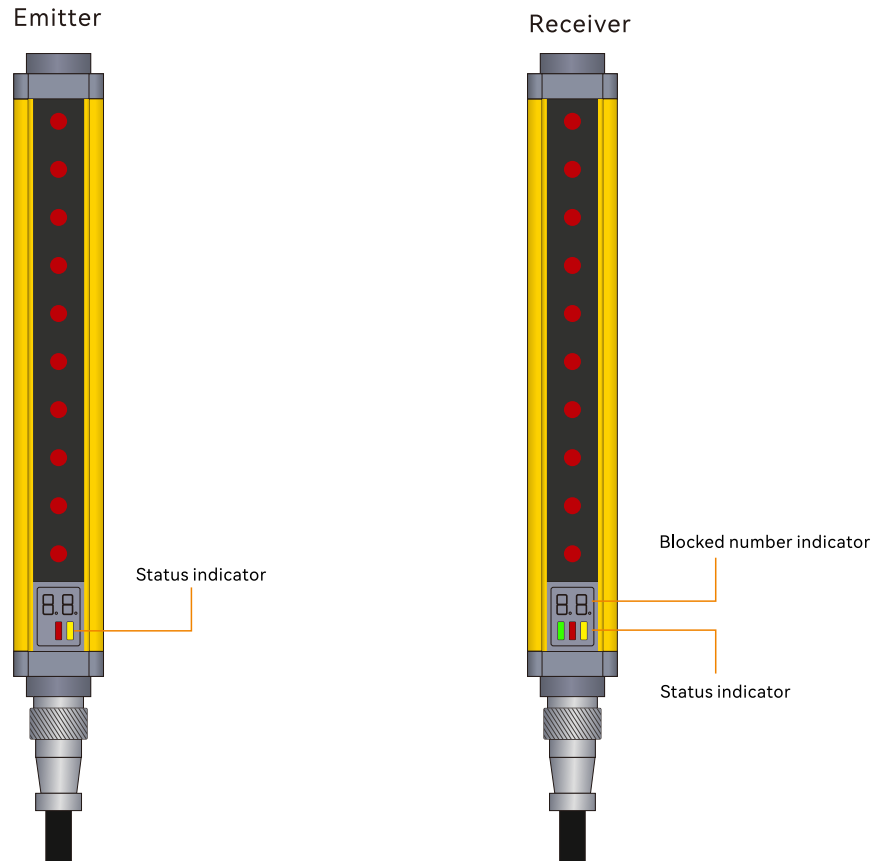
## Technical data

### Basic data of Receiver and Emitter





<b>Standard packaging</b>	
Product model	<b>QMT series</b>
Standard configuration	One receiver, one transmitter, two data lines, one right-angle rack, and one t-shaped screw
Light curtain form	Infrared radiation type
Application	Standard industrial environment
<b>Features</b>	
Resolution ratio	10mm, 20mm, 40mm, 80mm
Check the accuracy	15mm, 25mm, 45mm, 85mm
Number of beams	04、06、08、10.....
Overall dimension	51mm*35mm*L, L is the length of emitter and receiver.
Detection distance	30-6000mm (Default 30-6000mm, customer service can be contacted to customize 30-45000mm.)
Response time	≤15ms
<b>Synchronization</b>	
Consumption current	≤200mA
Output mode	2-circuit of PNP, with current of 500mA and voltage below 1.5V, polarity, short circuit and over-cutting protection
Output status	ON (receiving indicator green light)
Indicator light	Transmitter: power indicator light (red); receiver: output indicator light on (green), blackout (red)
Wavelength	850nm
Type of light	Infrared light (NIR), invisible
Function	Automatic reset
<b>Mechanical data</b>	
Housing material	Metal
Metal shell	Aluminium
Lens front screen material	Acrylic
Upper and lower cover materials	ABS reinforced nylon PA66+30% GF
<b>Performance data</b>	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC, -20...20%
Maximum current consumption	150mA
Fuse	2A half time interval
<b>Environmental data</b>	
Protection grade	IP65
Resistance to ambient light	Incandescent light: illumination of light-receiving surface 3000Lx; Sunlight: illumination of light-receiving surface 10000Lx
Ambient temperature	Working temperature: - 10~+40 °C (but not frozen), storage temperature: - 25 ~+55 °C
Ambient humidity	Working time: 35~85% RH, saving time: 35~95% RH

Output	
Number of safe output circuits (OSSD)	2-circuit
Type	Safety circuit output circuit OSSD
Minimum switch voltage high	18V
Minimum switch voltage low	2.5V
Typical switching voltage	22.5V
Voltage type	DC
Maximum current load	380mA
Load inductance	two thousand
Load capacity	zero point three
Maximum residual current	0.2mA
Typical residual current	0.002MA
Voltage drop	1.5V
Safety switch output 1	Connection pin 4, WHITE OSSD1
Switching element	Transistor PNP
Safety switch output 2	Connection pin 5, GREEN OSSD2
Switching element	Transistor PNP
Certificate	
CE TÜV	No.E8A 104143 0001 Rev.00
ROHS certification	No.BSTDG180811032001CC
CE TYPE 4	No.ICR Polska/VC/HS221214
UL	No. 4790783741.1-S
GB/T	No. HIC180327 GB/T 19001-2016 idt ISO 9001:2015

## Operation and display

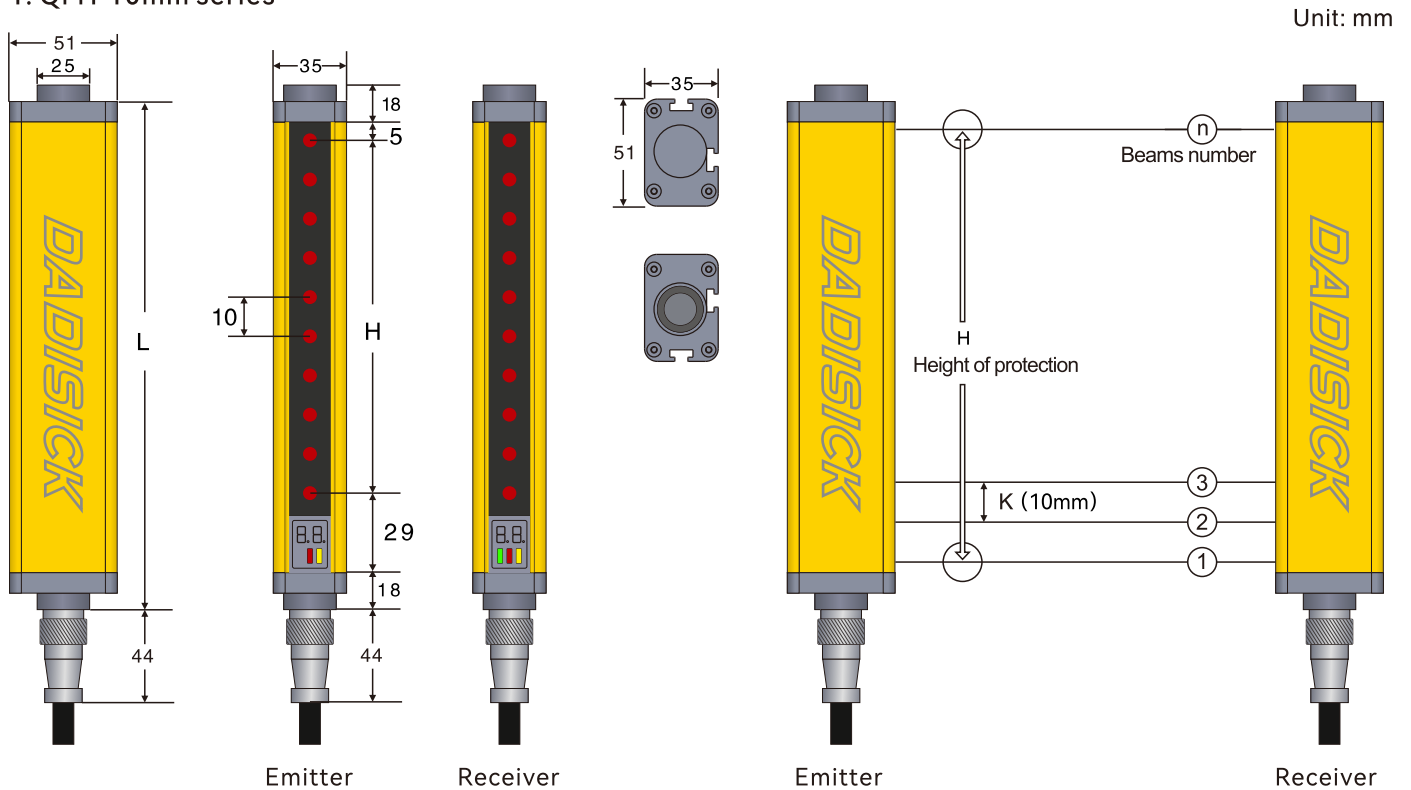


Status indicator	LED status Indicator	Explain
Emitter	 Red and Yellow, always on	Turns on the power

Status indicator	LED status Indicator	Explain
Receiver	 Red, always on	Turns on the power
	 Green and Red	All light paths are connected
	 Red and Yellow	The light is blocked or misaligned
	 Lights flashing	Interference or overstep detection range

## Dimensioned drawings

### 1. QMT 10mm series



#### Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

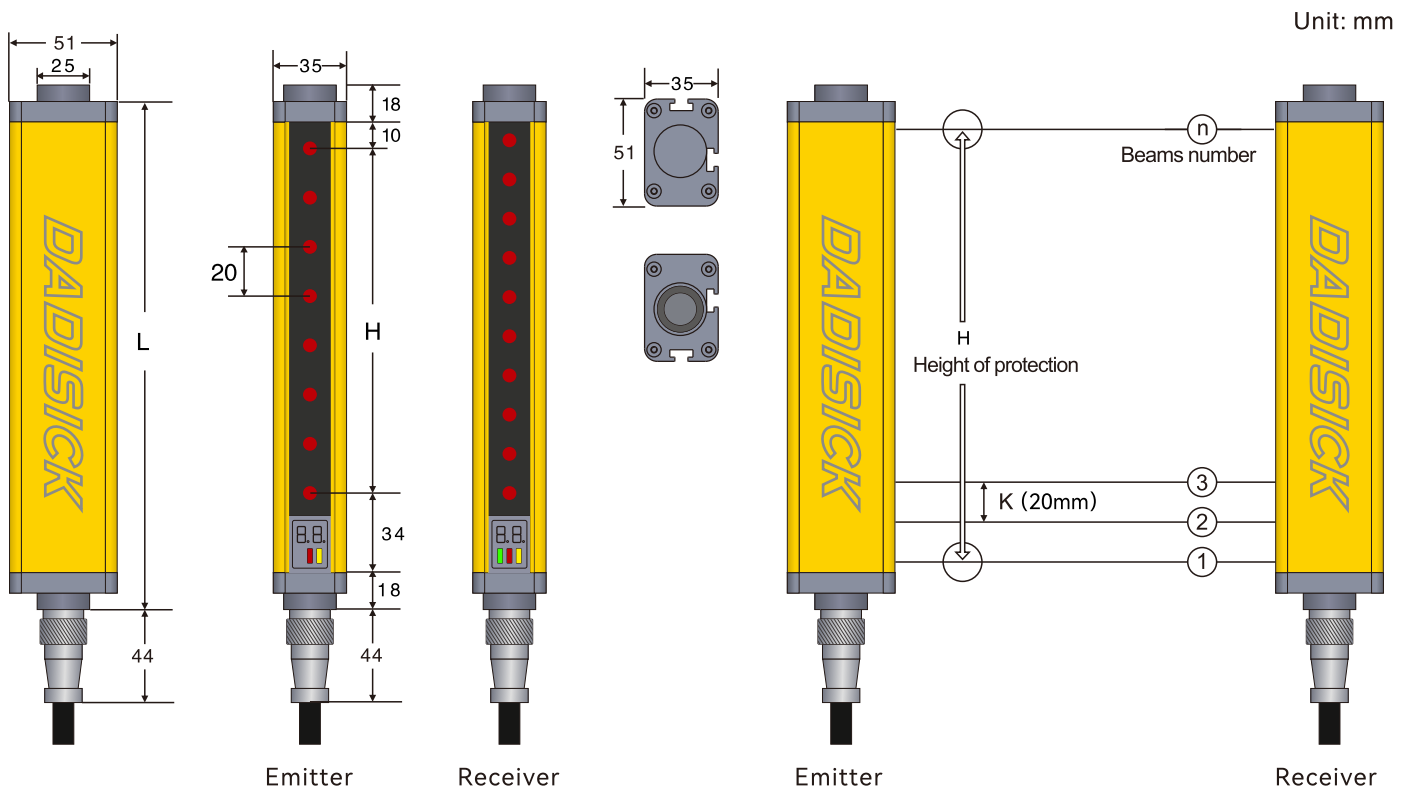
$L = 18 + 5 + H + 29 + 18$

$H = (n - 1) * 10$

### QMT 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
10mm (K)	8	70	140	QMT08/10-70	2	PNP	0.3-6m
	10	90	160	QMT10/10-90	2	PNP	0.3-6m
	12	110	180	QMT12/10-110	2	PNP	0.3-6m
	14	130	200	QMT14/10-130	2	PNP	0.3-6m
	16	150	220	QMT16/10-150	2	PNP	0.3-6m
	18	170	240	QMT18/10-170	2	PNP	0.3-6m
	20	190	260	QMT20/10-190	2	PNP	0.3-6m
	22	210	280	QMT22/10-210	2	PNP	0.3-6m
	24	230	300	QMT24/10-230	2	PNP	0.3-6m
	26	250	320	QMT26/10-250	2	PNP	0.3-6m
	28	270	340	QMT28/10-270	2	PNP	0.3-6m
	30	290	360	QMT30/10-290	2	PNP	0.3-6m
	32	310	380	QMT32/10-310	2	PNP	0.3-6m
	34	330	400	QMT34/10-330	2	PNP	0.3-6m
	36	350	420	QMT36/10-350	2	PNP	0.3-6m
	38	370	440	QMT38/10-370	2	PNP	0.3-6m
	40	390	460	QMT40/10-390	2	PNP	0.3-6m
	42	410	480	QMT42/10-410	2	PNP	0.3-6m
	44	430	500	QMT44/10-430	2	PNP	0.3-6m
	46	450	520	QMT46/10-450	2	PNP	0.3-6m
48	470	540	QMT48/10-470	2	PNP	0.3-6m	
50	490	560	QMT50/10-490	2	PNP	0.3-6m	
52	510	580	QMT52/10-510	2	PNP	0.3-6m	
54	530	600	QMT54/10-530	2	PNP	0.3-6m	
56	550	620	QMT56/10-550	2	PNP	0.3-6m	
58	570	640	QMT58/10-570	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
196	1950	2020	QMT196/10-1950	2	PNP	0.3-6m	
198	1970	2040	QMT198/10-1970	2	PNP	0.3-6m	
200	1990	2060	QMT200/10-1990	2	PNP	0.3-6m	

## 2. QMT 20mm series



## Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

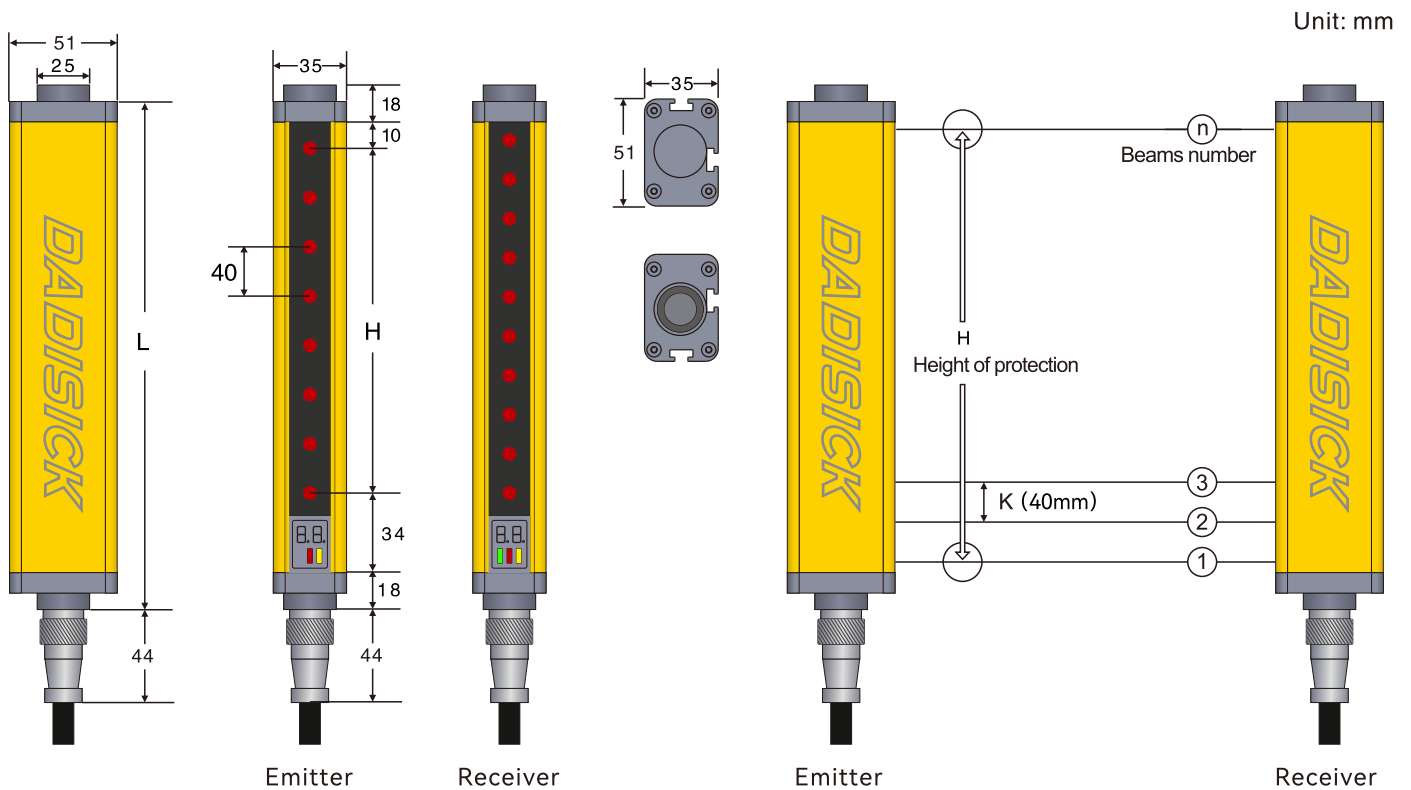
n: Beams number

 $L = 18 + 10 + H + 34 + 18$  $H = (n - 1) * 20$ 

## QMT 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
20mm (K)	4	60	140	QMT04/20-60	2	PNP	0.3-6m
	6	100	180	QMT06/20-100	2	PNP	0.3-6m
	8	140	220	QMT08/20-140	2	PNP	0.3-6m
	10	180	260	QMT10/20-180	2	PNP	0.3-6m
	12	220	300	QMT12/20-220	2	PNP	0.3-6m
	14	260	340	QMT14/20-260	2	PNP	0.3-6m
	16	300	380	QMT16/20-300	2	PNP	0.3-6m
	18	340	420	QMT18/20-340	2	PNP	0.3-6m
	20	380	460	QMT20/20-380	2	PNP	0.3-6m
	22	420	500	QMT22/20-420	2	PNP	0.3-6m
	24	460	540	QMT24/20-460	2	PNP	0.3-6m
	26	500	580	QMT26/20-500	2	PNP	0.3-6m
	28	540	620	QMT28/20-540	2	PNP	0.3-6m
	30	580	660	QMT30/20-580	2	PNP	0.3-6m
	32	620	700	QMT32/20-620	2	PNP	0.3-6m
	34	660	740	QMT34/20-660	2	PNP	0.3-6m
	36	700	780	QMT36/20-700	2	PNP	0.3-6m
	38	740	820	QMT38/20-740	2	PNP	0.3-6m
	40	780	860	QMT40/20-780	2	PNP	0.3-6m
	42	820	900	QMT42/20-820	2	PNP	0.3-6m
44	860	940	QMT44/20-860	2	PNP	0.3-6m	
46	900	980	QMT46/20-900	2	PNP	0.3-6m	
48	940	1020	QMT48/20-940	2	PNP	0.3-6m	
50	980	1060	QMT50/20-980	2	PNP	0.3-6m	
52	1020	1100	QMT52/20-1020	2	PNP	0.3-6m	
54	1060	1140	QMT54/20-1060	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
196	3900	3980	QMT196/20-3900	2	PNP	0.3-6m	
198	3940	4020	QMT198/20-3940	2	PNP	0.3-6m	
200	3980	4060	QMT200/20-3980	2	PNP	0.3-6m	

## 3. QMT 40mm series

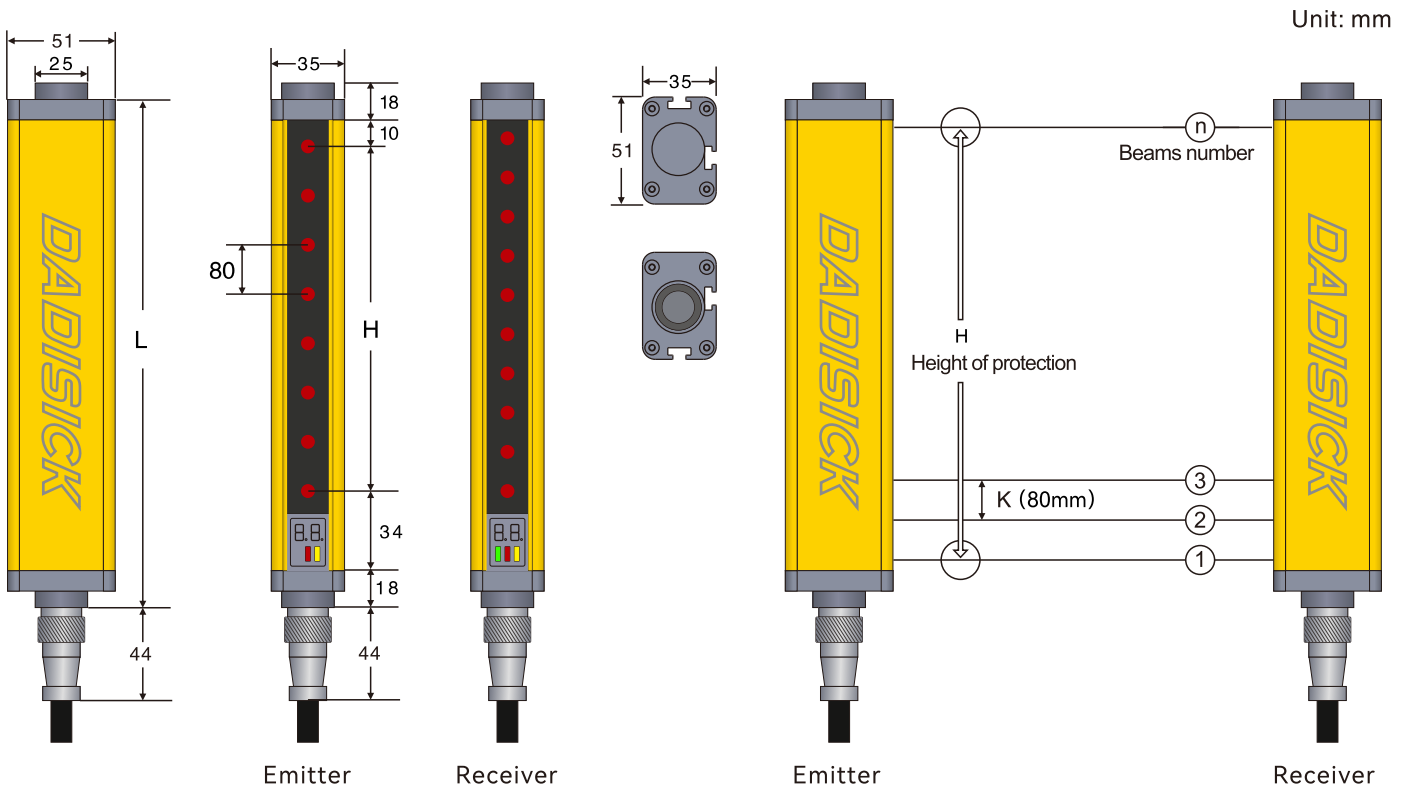


## QMT 40mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
40mm (K)	4	120	200	QMT04/40-120	2	PNP	0.3-6m
	6	200	280	QMT06/40-200	2	PNP	0.3-6m
	8	280	360	QMT08/40-280	2	PNP	0.3-6m
	10	360	440	QMT10/40-360	2	PNP	0.3-6m
	12	440	520	QMT12/40-440	2	PNP	0.3-6m
	14	520	600	QMT14/40-520	2	PNP	0.3-6m
	16	600	680	QMT16/40-600	2	PNP	0.3-6m
	18	680	760	QMT18/40-680	2	PNP	0.3-6m
	20	760	840	QMT20/40-760	2	PNP	0.3-6m
	22	840	920	QMT22/40-840	2	PNP	0.3-6m
	24	920	1000	QMT24/40-920	2	PNP	0.3-6m
	26	1000	1080	QMT26/40-1000	2	PNP	0.3-6m
	28	1080	1160	QMT28/40-1080	2	PNP	0.3-6m
	30	1160	1240	QMT30/40-1160	2	PNP	0.3-6m
	32	1240	1320	QMT32/40-1240	2	PNP	0.3-6m
	34	1320	1400	QMT34/40-1320	2	PNP	0.3-6m
	36	1400	1480	QMT36/40-1400	2	PNP	0.3-6m
	38	1480	1560	QMT38/40-1480	2	PNP	0.3-6m
	40	1560	1640	QMT40/40-1560	2	PNP	0.3-6m
	42	1640	1720	QMT42/40-1640	2	PNP	0.3-6m
44	1720	1800	QMT44/40-1720	2	PNP	0.3-6m	
46	1800	1880	QMT46/40-1800	2	PNP	0.3-6m	
48	1880	1960	QMT48/40-1880	2	PNP	0.3-6m	
50	1960	2040	QMT50/40-1960	2	PNP	0.3-6m	
52	2040	2120	QMT52/40-2040	2	PNP	0.3-6m	
54	2120	2200	QMT54/40-2120	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
96	3800	3800	3880	QMT96/40-3800	2	PNP	0.3-6m
98	3880	3880	3960	QMT98/40-3880	2	PNP	0.3-6m
100	3960	3960	4040	QMT100/40-3960	2	PNP	0.3-6m



## 4. QMT 80mm series



## Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

 $L = 18 + 10 + H + 34 + 18$  $H = (n - 1) * 80$ 

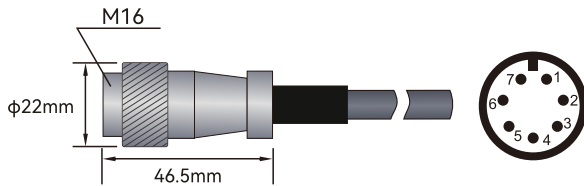
## QMT 80mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
80mm (K)	4	240	320	QMT04/80-240	2	PNP	0.3-6m
	6	400	480	QMT06/80-400	2	PNP	0.3-6m
	8	560	640	QMT08/80-560	2	PNP	0.3-6m
	10	720	800	QMT10/80-720	2	PNP	0.3-6m
	12	880	960	QMT12/80-880	2	PNP	0.3-6m
	14	1040	1120	QMT14/80-1040	2	PNP	0.3-6m
	16	1200	1280	QMT16/80-1200	2	PNP	0.3-6m
	18	1360	1440	QMT18/80-1360	2	PNP	0.3-6m
	20	1520	1600	QMT20/80-1520	2	PNP	0.3-6m
	22	1680	1760	QMT22/80-1680	2	PNP	0.3-6m
	24	1840	1920	QMT24/80-1840	2	PNP	0.3-6m
	26	2000	2080	QMT26/80-2000	2	PNP	0.3-6m
	28	2160	2240	QMT28/80-2160	2	PNP	0.3-6m
	30	2320	2400	QMT30/80-2320	2	PNP	0.3-6m
	32	2480	2560	QMT32/80-2480	2	PNP	0.3-6m
	34	2640	2720	QMT34/80-2640	2	PNP	0.3-6m
	36	2800	2880	QMT36/80-2800	2	PNP	0.3-6m
	38	2960	3040	QMT38/80-2960	2	PNP	0.3-6m
	40	3120	3200	QMT40/80-3120	2	PNP	0.3-6m
	42	3280	3360	QMT42/80-3280	2	PNP	0.3-6m
44	3440	3520	QMT44/80-3440	2	PNP	0.3-6m	
46	3600	3680	QMT46/80-3600	2	PNP	0.3-6m	
48	3760	3840	QMT48/80-3760	2	PNP	0.3-6m	
50	3920	4000	QMT50/80-3920	2	PNP	0.3-6m	

## Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M16 connector, 7-pin
Interface metal	Copper nickel plating
Plug material	kirsite
Rated current (A)	5A
Contact DC (AC V)	Φ1*5
working voltage (AC V)	500V
pressurization (AC V)	1500V
contact resistance	5MΩ
insulation resistance	2000MΩ
Allowable typical conductor section	0.25mm <sup>2</sup>
Maximum link cable	100M
Maximum allowable carrying current	4.9A
Cable material	PVC
Shielding	shielded

### Cable description:



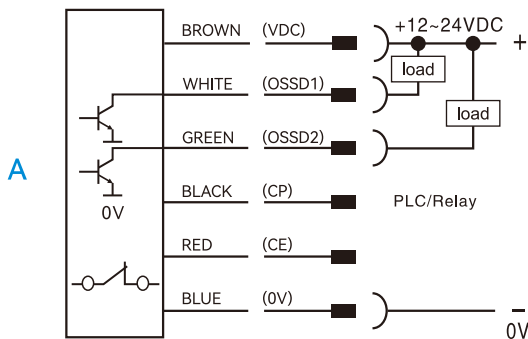
7-pin M16 cable connector straight  
3m waterproof cable

Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	NC
5	GREEN	NC
6	RED	CE
7	YELLOW	Ground wire

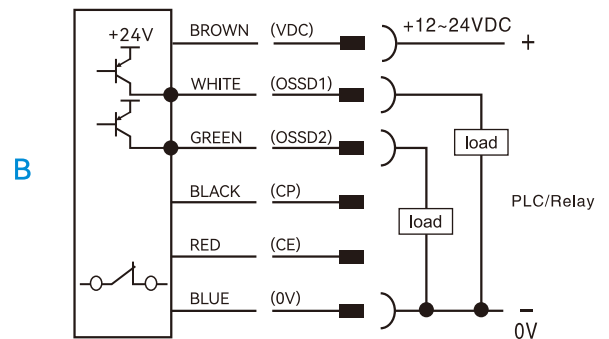
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	OSSD1
5	GREEN	OSSD2
6	RED	CE
7	YELLOW	Ground wire

### 1. QMT signal output selection (actual output of transistor working normally)

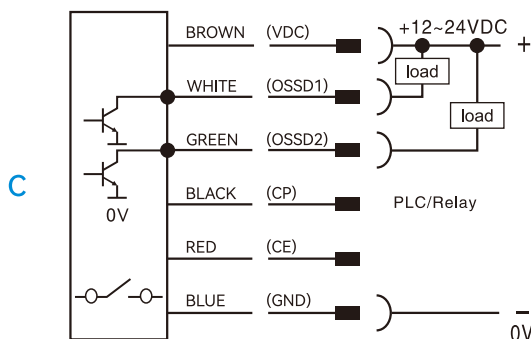
#### NPN NC



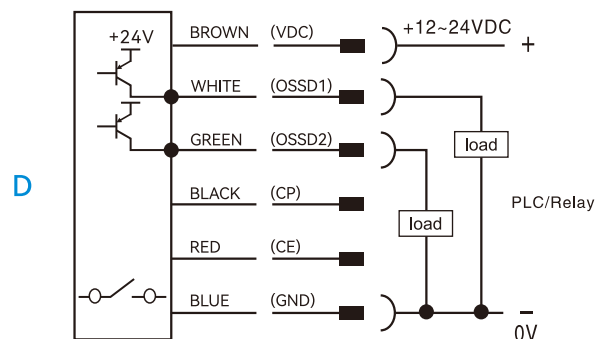
#### PNP NC



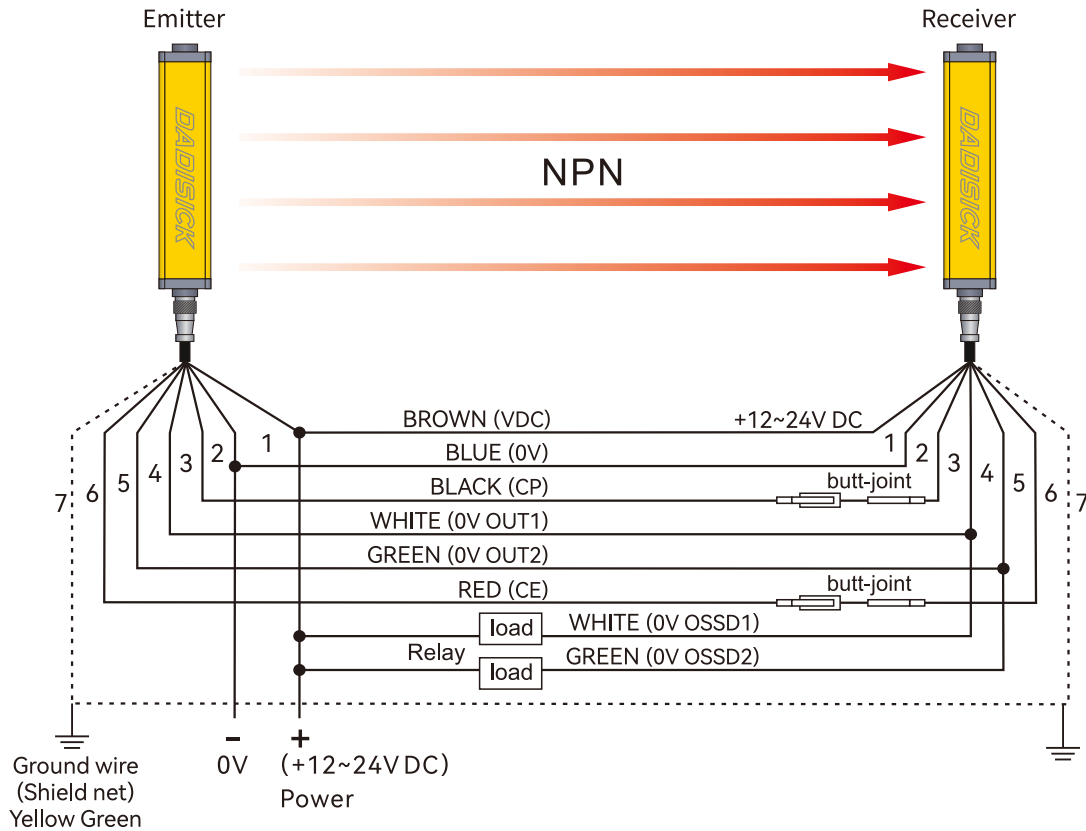
#### NPN NO



#### PNP NO

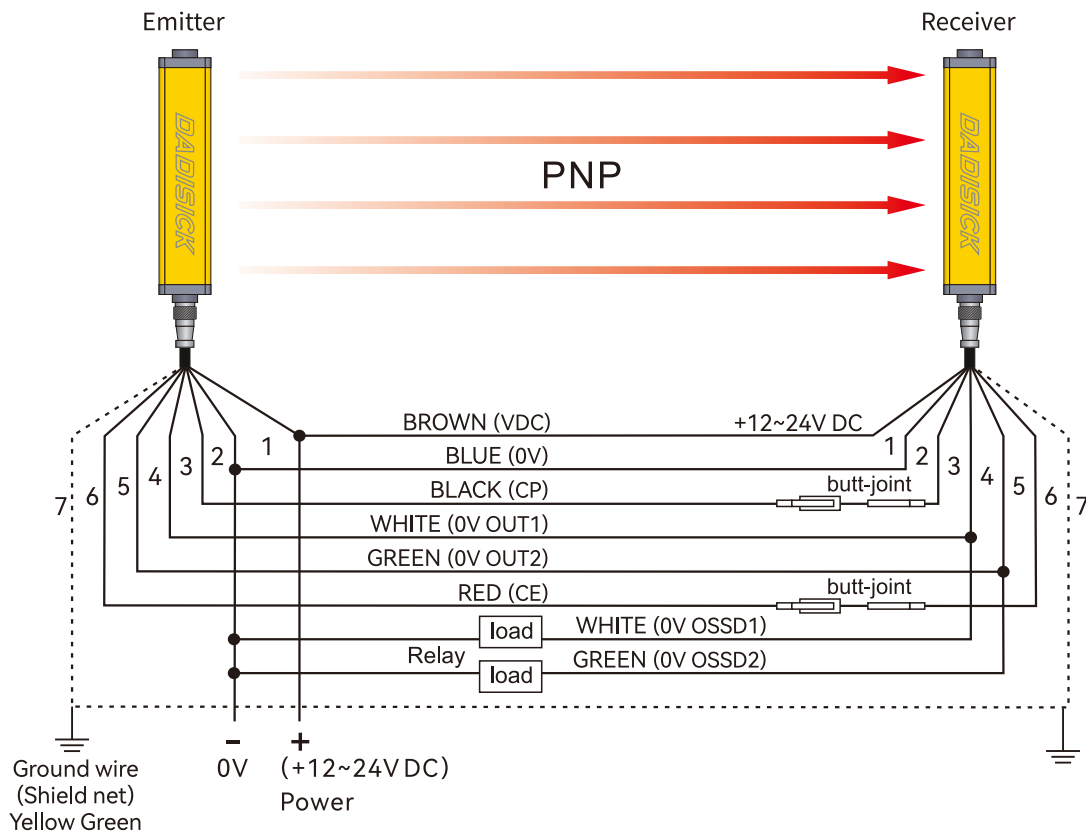


## 2. NPN output wiring diagram








This figure is an example of NPN double output 7-pin wiring.

## 3. PNP output wiring diagram

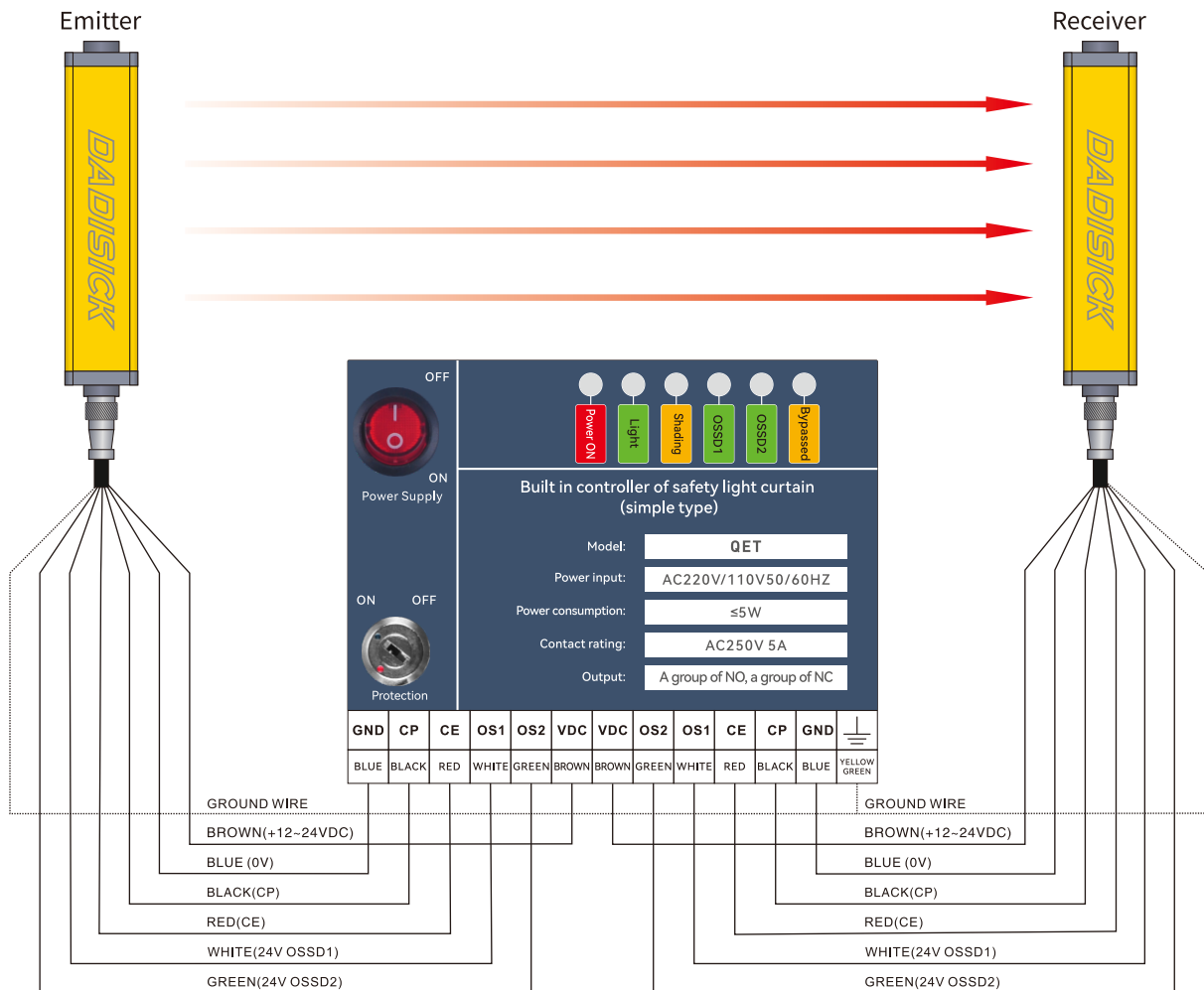


This figure is an example of PNP double output 7-pin wiring.

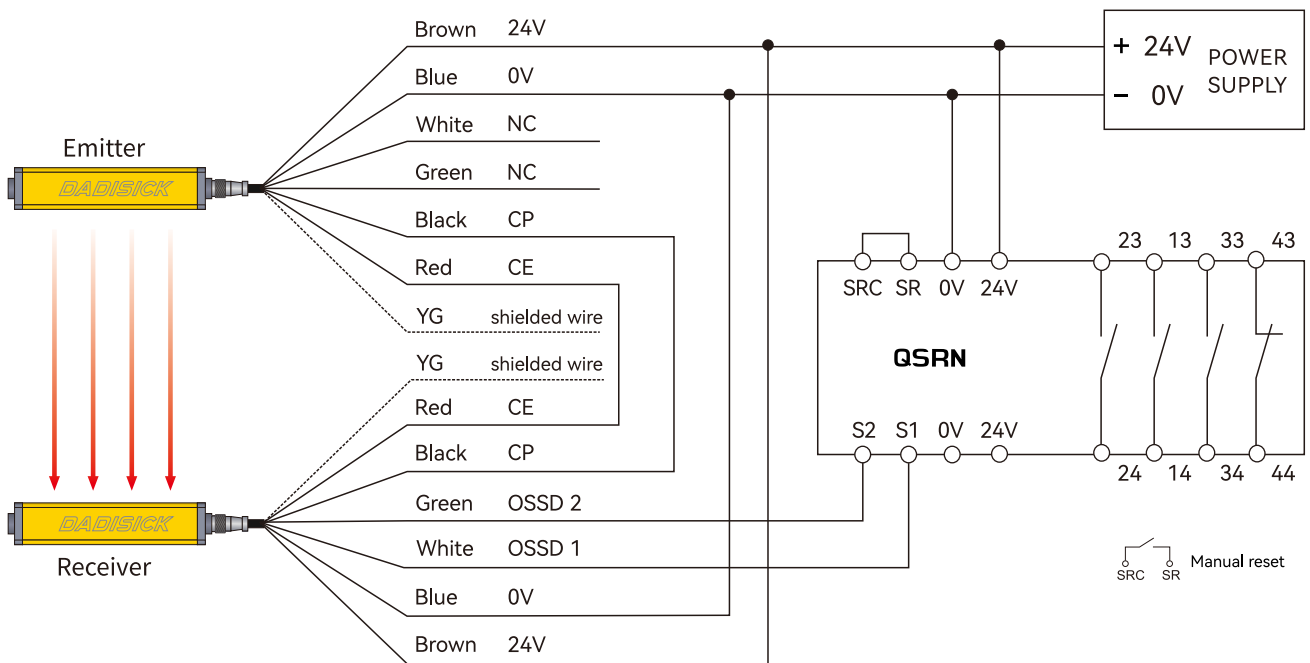
#### 4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of QMT series light curtain, and output one group of NO and one group of NC.
Safety relay		QSRN	QSRN safety relays have three groups of NO and one group of NC, with strong control capabilities. They are suitable for various signal monitoring in industrial places with high safety requirements, including emergency stop signals, safety door opening and closing signals, safety light curtain signals, and two-handed button signals.
Safety relay	  Multifunctional switching switch	Ter-A	Equipped with a mode switch, it can be used for most safety components, such as light curtains, safety switches, carpet contacts, two handed switches, etc. Automatic/manual reset paddles for quick configuration. Dual channel monitoring circuit, safe and reliable.
Light curtain relay		QET-1	Output conversion between NC and NO for QMT series light curtain.

#### 4.1 Wiring diagram of QET built-in controller

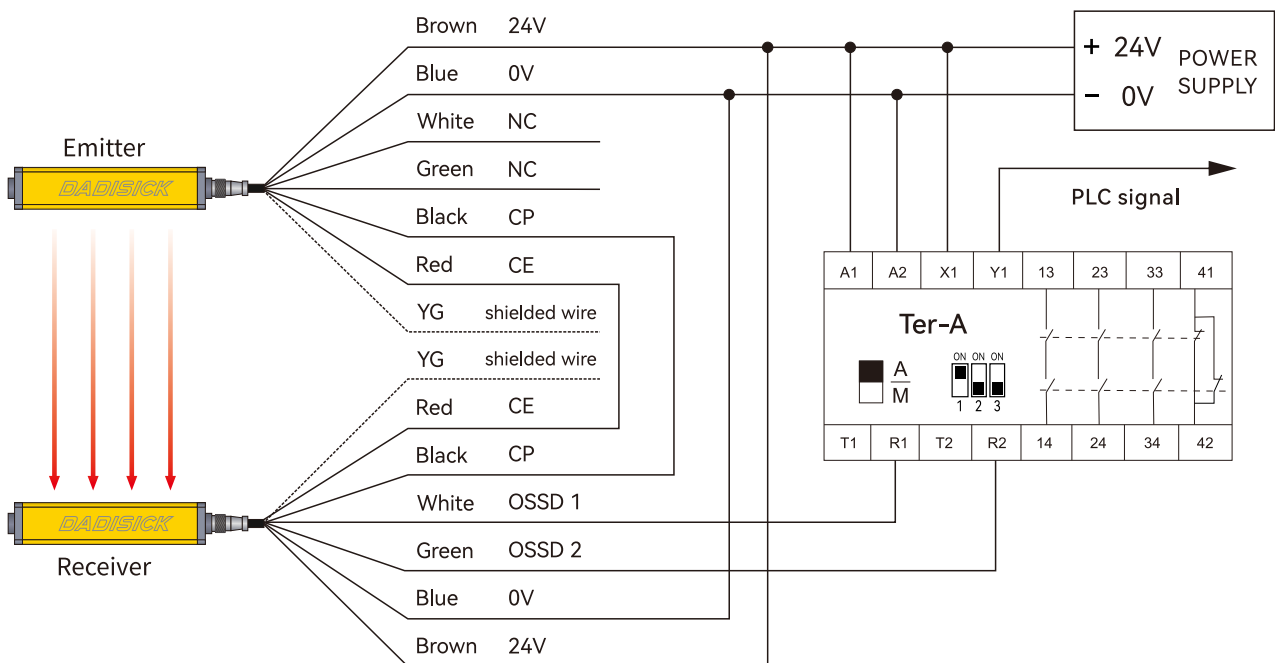


#### 4.2 Wiring diagram of QSRN safety relay

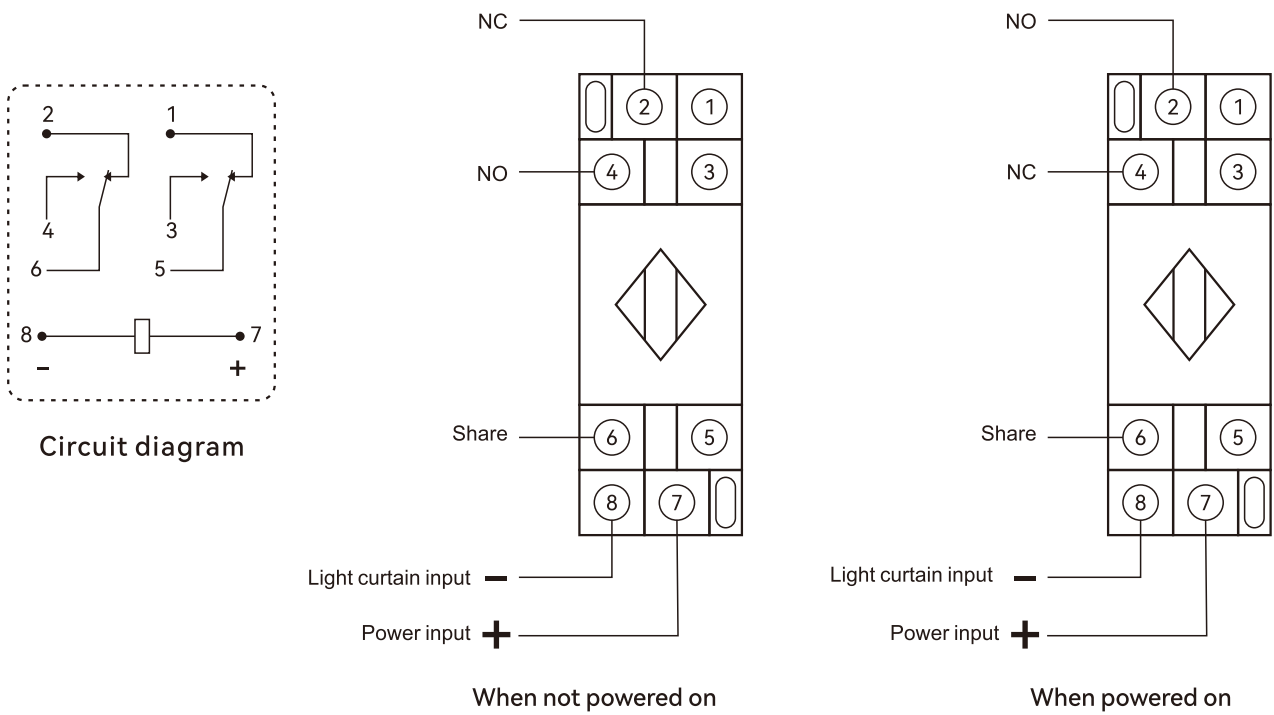


#### 4.3 Wiring diagram of Ter-A safety relay

Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.

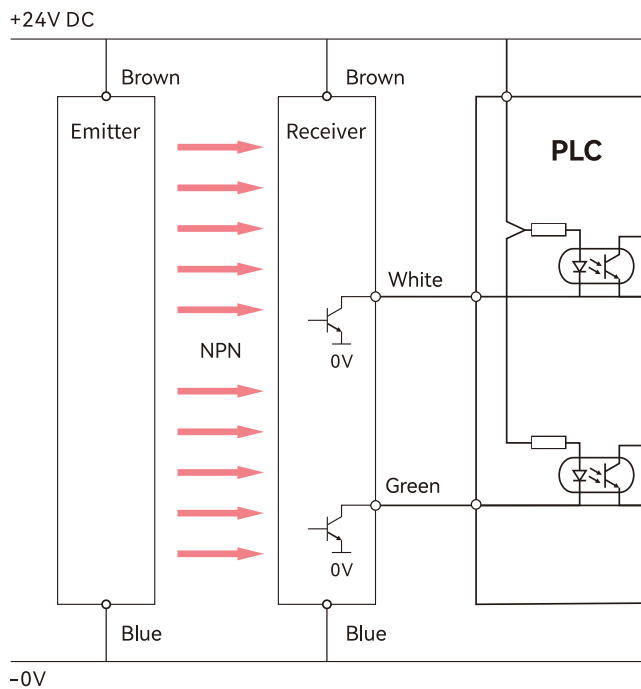


#### 4.4 Wiring diagram of QET-1 light curtain relay

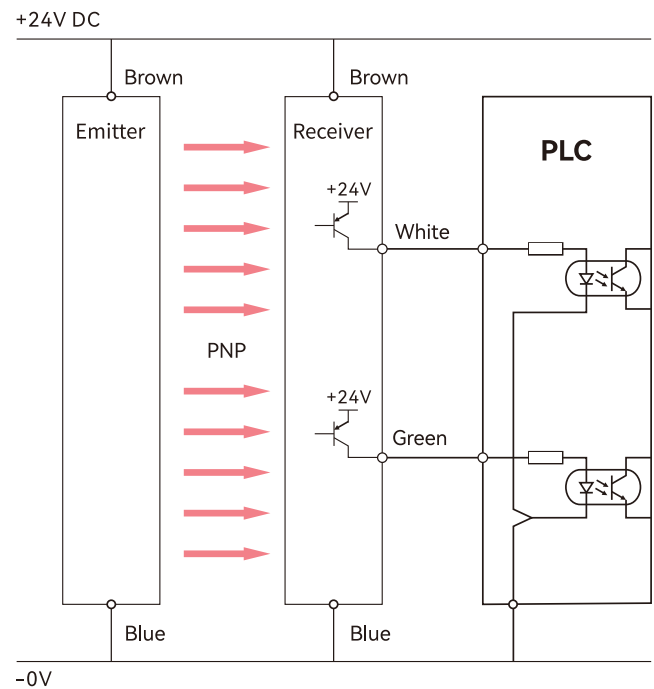


#### 4.5 Wiring between light curtain and PLC and one-chip computer system

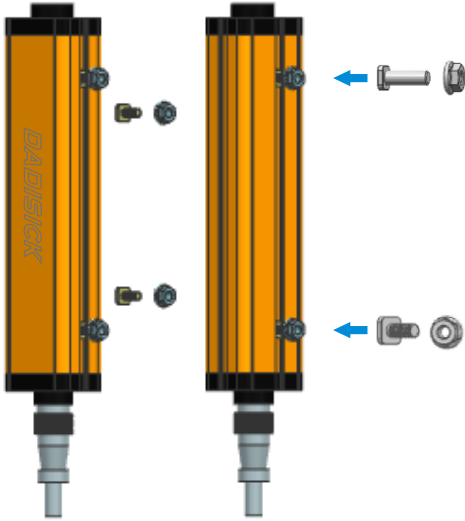
NPN wiring:



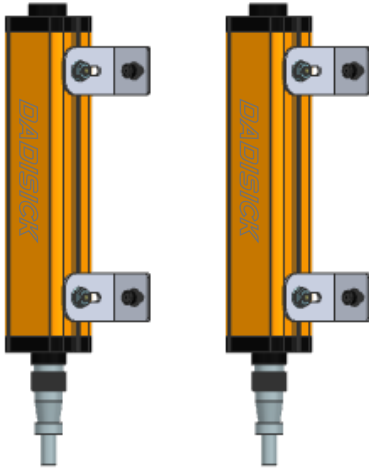
PNP wiring:



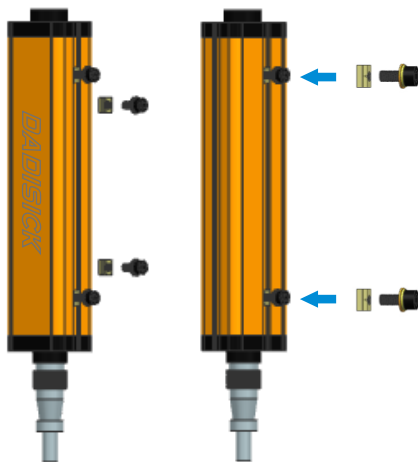
## Accessories



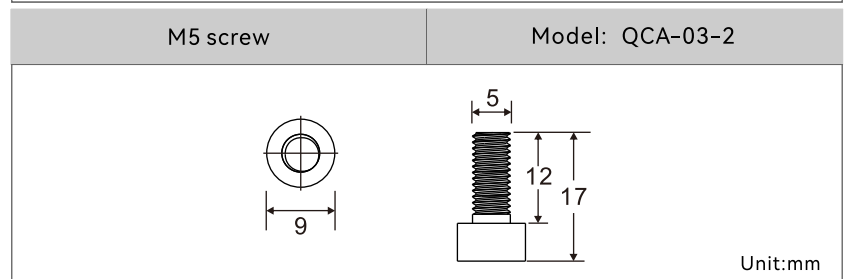
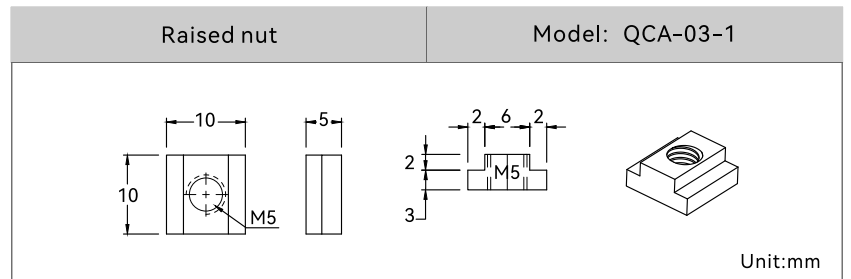
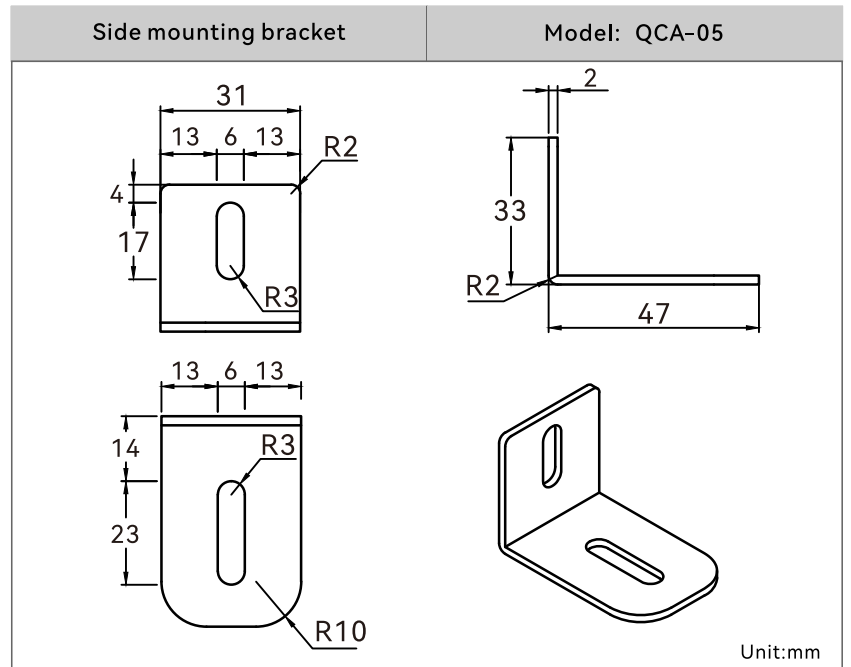
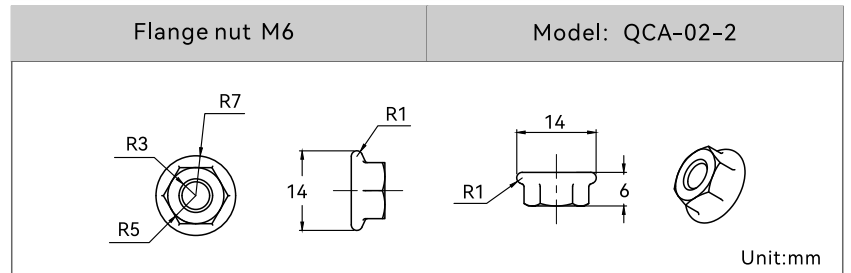
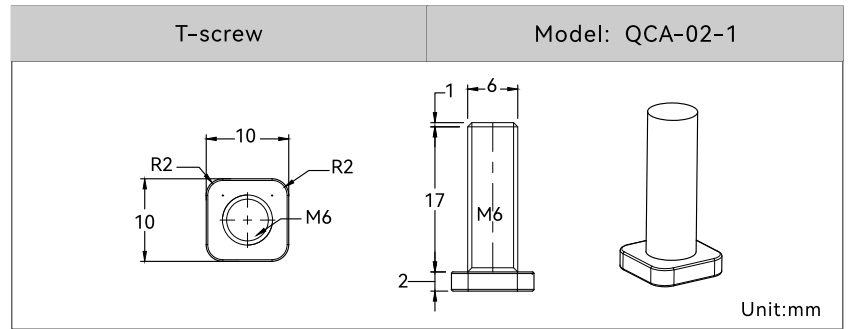
1. Installation method of T-shaped screws on the back  
(Original accessories)

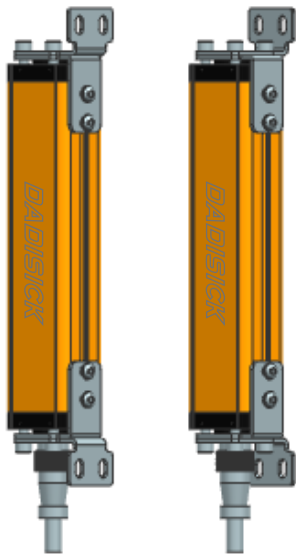


2. Installation method of side right angle bracket  
(Original accessories)

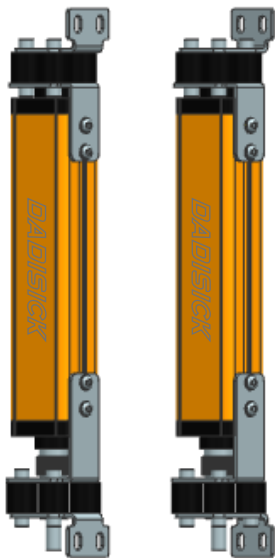


3. Installation method of convex nut  
(Optional accessories)





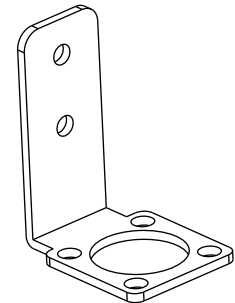
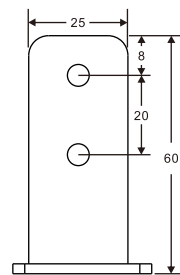
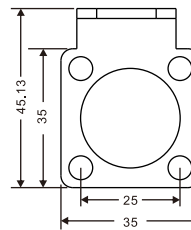
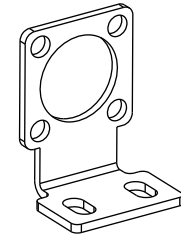
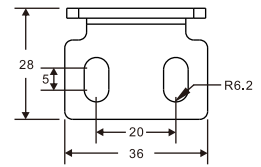
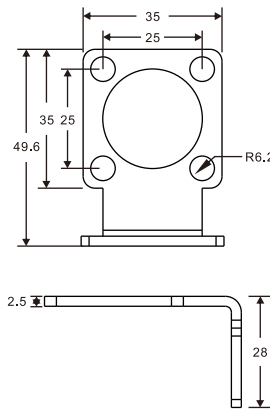
4. Installation method of right angle brackets at both ends  
(Order separately)



5. Shockproof installation method of right angle brackets at both ends  
(Order separately)

Right angle brackets at both ends

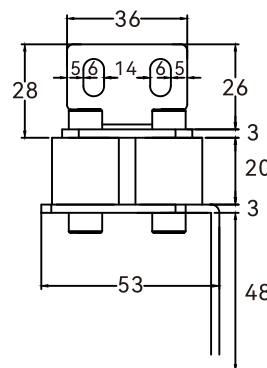
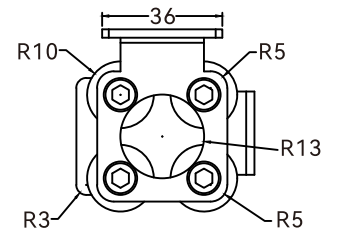
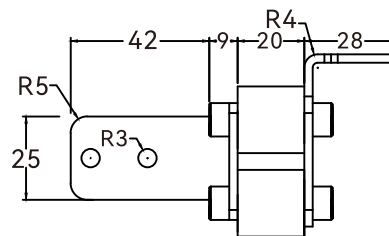
Model: QA-02



Unit:mm

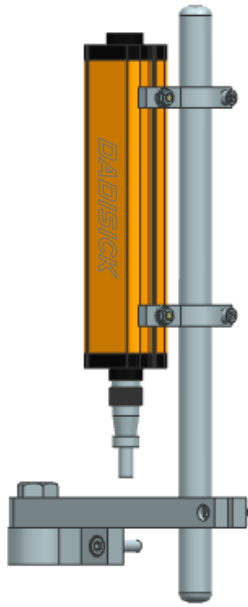
Shockproof right angle brackets

Model: QA-01



Unit:mm





6. Stainless steel bracket installation  
(Order separately)

